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# EPA Superfund
# Record of Decision:

**MARINE CORPS COMBAT DEVELOPMENT COMMAND**
**EPA ID: VA1170024722**
**OU 04**
**QUANTICO, VA**
**09/30/1997**

EPA/541/R-97/093
<IMG SRC 970930>

# RECORD OF DECISION

FOR

# OLD LANDFILL - SITE 4

## INTERIM REMEDIAL ACTION

<IMG SRC 97093A>

MARINE CORPS COMBAT DEVELOPMENT COMMAND
QUANTICO, VIRGINIA

SEPTEMBER 1997

# DECLARATION FOR THE RECORD OF DECISION

## SITE NAME AND LOCATION

Old Landfill, Site 4, Operable Unit 4
Marine Corps Combat Development Command (MCCDC)
Quantico, Virginia

## STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) presents the selected Interim Remedial Action (IRA) for the Old Landfill, Installation Restoration (IR) Site 4, Operable Unit 4 (OU4), MCCDC, Quantico, Virginia. For consistency, this ROD will refer to the site as the Old Landfill,Site 4. The selected IRA was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, 42 U.S.C. Section 9601 et seq., and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP, 40 CFR Part 300). This ROD provides the factual basis for selecting the IRA for the Old Landfill and the rationale for the decision. The information supporting this IRA decision is contained in the Administrative
Record for this site.

The Commonwealth of Virginia, Department of Environmental Quality (VDEQ) supports the selected IRA.

## ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the site, if not addressed by implementing the IRA selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

## DESCRIPTION OF THE SELECTED REMEDY

This action is the third for the Old Landfill. The first action, a Removal Action (RA), was conducted in 1990 to remove polychlorinated biphenyl (PCB) contaminated soil from the Defense Reutilization and Marketing Office (DRMO) Scrapyard and DRMO Transformer Storage Area, located within the Old Landfill boundary. Approximately 3,800 tons of contaminated soil and scrap were removed and disposed of off-site during that action.

The second action, an erosion and sediment control Removal Action, was implemented in 1994 to reduce the amount of PCB contaminated sediment and surface water runoff leaving the Old Landfill and entering the Potomac River. That action included:

- Installation of silt fence, hay bales, rip rap, and berms to prevent contaminated soils and sediments from migrating;

- Scarifying the blacktop area on the west side of the Old Landfill to increase infiltration and reduce the runoff from entering the drainage swale; and

- Collection of monthly surface water samples from the drainage swale outfall to monitor discharges to the Potomac River.

The selected IRA addresses the known principal threats posed by the site, which are contaminated soils and sediments in and surrounding the drainage swale. This IRA will: minimize direct contact, inhalation, and ingestion of contaminants posing a carcinogenic risk; reduce migration of contaminants to groundwater; restrict migration of contaminants to the adjacent embayment; and comply with all Applicable or Relevant and Appropriate Requirements directly associated with this action. This selected IRA will be followed by further investigations and a final remedy. It is anticipated that the IRA will be consistent
with the final remedy.

The major components of the IRA include:

- Institutional controls, to include no breaching of the barrier layer, fencing around the entire site with locked gates, and restricting access by unauthorized personnel;

- Consolidation of existing berms, demolition and off-site disposal of scrapyard buildings, and incorporation of scrapyard building foundations within the Old Landfill;

- Excavation and off-site disposal of surface soil and drainage swale sediments contaminated with PCBs in excess of 10 parts per million (ppm);

- Permeable soil barrier layer installation covering 23 acres, and incorporation of flood control measures and shore protection;

- Successful replacement and restoration of wetlands destroyed/impacted by the implementation of the IRA (1.8 acres impacted vs. 2.1 acres replaced), including ensuring the replacement and restoration is successful, through continued monitoring and other appropriate measures;

- Operation and maintenance; and

- Five-year reviews as required by CERCLA.

Final-use restrictions will be addressed in the final remedy. Until that time, institutional controls, to include no breaching of the barrier layer, fencing around the entire site with locked gates, and restricting access by unauthorized personnel, will be employed by the Navy as protection. No invasive development of the landfill area will be allowed.

In addition, operations and maintenance (O&M) will be performed in accordance with the Virginia Solid Waste Management Regulations (VSWMR º5.0). This O&M will include an annual inspection of the cover, initiated within one year of completion of the IRA. O&M will include, at a minimum, the following items:

- Performance standards to assure integrity of the barrier layer;

- Erosion control;

- Wetland monitoring; and

- Inspection and maintenance as applicable.

STATUTORY DETERMINATIONS

This IRA is protective of human health and the environment in the short term and is intended to provide adequate protection until a final ROD is issued complies with Federal and State ARARS for this limited-scope action, and is cost effective. This action is interim and is not intended to utilize permanent solutions and alternative treatment technologies to the maximum extent practicable for this operable unit. Because this action does not constitute the final remedy for the operable unit, the statutory preference for remedies that employ treatment that reduces toxicity, mobility or volume as a principal element need not be satisfied and will be addressed by the final response action. Subsequent actions are planned to address fully the threats posed by the conditions at this operable unit.

Because this remedy will result in hazardous substances remaining on site above health-based levels, a review will be conducted to ensure that the remedy continues to provide adequate protection of human health and the environment within five years after commencement of the remedial action. Because this is an interim action ROD, review of this site and of this interim remedy will be on-going as the Navy and USEPA continue to develop final remedial alternatives for the operable unit.

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ACRONYMS

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|---|---|
| ARARs | Applicable or Relevant and Appropriate Regulations |
| AWQC | Ambient Water Quality Criteria |
| BTAG | Biological Technical Assistance Group |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| CLEAN | Comprehensive Long-Term Environmental Action Navy |
| COE | United States Corps of Engineers |
| DDD | Dichlorodiphenyldichloroethane |
| DDE | Dichlorodiphenylethane |
| DDT | Dichlorodiphenyltrichloroethane |
| DRMO | Defense Reutilization and Marketing Office |
| EFACHES | Engineering Field Activity Chesapeake |
| FFS | Focused Feasibility Study |
| FS | Feasibility Study |
| HNUS | Halliburton NUS Corporation |
| IAS | Initial Assessment Study |
| IR | Installation Restoration |
| IRA | Interim Remedial Action |
| IRP | Installation Restoration Program |
| MCCDC | Marine Corps Combat Development Command |
| NCP | National Oil and Hazardous Substances Pollution Contingency Plan |
| NPDES | National Pollutant Discharge Elimination System |
| NPL | National Priorities List |
| PCB | Polychlorinated Biphenyl |
| RA | Removal Action |
| RAA | Remedial Action Alternative |
| RAC | Remedial Action Contract |
| RCRA | Resource Conservation and Recovery Act |
| RI | Remedial Investigation |
| ROD | Record of Decision |
| SARA | Superfund Amendments and Reauthorization Act |
| TBC | To Be Considered |
| TPH | Total Petroleum Hydrocarbon |
| TSCA | Toxic Substance Control Act |
| USEPA | United States Environmental Protection Agency |
| USFWS | United States Fish and Wildlife Service |
| VDEQ | Commonwealth of Virginia, Department of Environmental Quality |
| VMRC | Virginia Marine Resources Commission |
| VPDES | Virginia Pollution Discharge Elimination System |

## 1.0 SITE NAME, LOCATION AND DESCRIPTION

The Marine Corps Combat Development Command (MCCDC), Quantico, Virginia is a 60,000 acre Marine Corps installation located in southern Prince William, northern Stafford and eastern Fauquier Counties, Virginia and is bordered on the east by the Potomac River. Figure 1 provides a location map for the Base and for the Old Landfill. The installation has been in operation since 1917 and is currently bordered by residential, park, farmland and commercial properties. The installation is located approximately 35 miles south of Washington, DC and is divided by Interstate 95 into two areas: Mainside (east of I-95) and Guadalcanal (west of I-95).

The Old Landfill is located on the Mainside Area, adjacent to the Potomac River. The Old Landfill is bordered on the north by the Mainside Sewage Treatment Plant, to the south by the Marine Corps Air Facility and to the west by the Richmond, Fredericksburg and Potomac Railroad. The Town of Quantico is located approximately 1/2 mile north of the Old Landfill.

The Old Landfill is 23 acres in size and was operated from 1920 to 1971. Concurrent to and after landfill operations ceased, it was also used as a scrapyard operated by the Defense Property Disposal Office and later the Defense Reutilization and Marketing Office (DRMO). In addition to the DRMO Scrapyard, there was also an area designated as the DRMO Transformer Storage Area. Existing structures at the Old Landfill included Buildings 671 and 672 (and associated concrete foundations) in the DRMO Scrapyard and Building 679, 680, and several concrete loading structures at the DRMO Transformer Storage Area. Presently, the Old Landfill is partially covered with forest, open fields, paved and graveled areas, and is partially surrounded by a chain link fence. Figure 2 provides a layout of the Old Landfill.

The Old Landfill is located adjacent to the Potomac River and within its floodplain. The ground surface elevation at the Old Landfill ranges from 1 to 20 feet above mean sea level. The Potomac River water surface elevation is tidally influenced and approximates mean sea level. Drainage from the area is channelized into two primary paths: the drainage swale and the unnamed tributary. The entire Old Landfill site lies within the Atlantic Coastal Plain Physiographic Province. The geology consists of an eastward thickening wedge of sand, silt and clay sediments. The surface soil consists of artificial fill to a depth of approximately eight feet below ground surface. River deposits are encountered beneath the fill material that consist primarily of alluvium and river terrace deposits to a depth of 60 feet. The deposits are described as gray to black sand, silt and organic clay, interlayered with peat in the southwestern portion of the site.

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The Aquia Formation was partially encountered at 50 feet below ground surface and is described as a distinct grayish green cohesive, dense sand with sift and clay. A layer of clay was encountered at 60 feet below ground surface, however, the extent of this clay layer is unknown.

Groundwater at the Old Landfill is shallow and occurs at less than three feet to 13 feet below ground surface. Shallow groundwater flows toward surface water to the east, south and southwest. However, the overall general direction of the shallow groundwater flow is toward the east and to the Potomac River. The estimated horizontal rate that shallow groundwater flows is 38 feet per day.

## 2.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

### 2.1 History

Waste disposal operations were initiated at the Old Landfill in the early 1920s and continued to expand eastward, ceasing in 1971, when another municipal landfill was opened west of Interstate 95. Wastes were typically burned prior to disposal in the landfill until the 1960s and included municipal refuse, construction and demolition debris, and wastes from Base operations. The estimated volume of fill material at the Old Landfill is 7.6 million cubic feet. Depth of the fill material is eight feet below ground surface.

As sections of the landfill were closed down, the area was taken over by DRMO to stage scrap prior to disposal. Items stored included drums containing waste fuels and solvents, transformers, and out of service military vehicles. Additionally, construction materials (road salt, sand, gravel and asphaft) were stockpiled for as-needed uses. Concurrent to and after the landfill operations ceased, electrical transformers were stored and opened at the DRMO Transformer Storage Area, Transformers were opened and drained to recover the copper wire and steel casings. The dielectric fluid, containing PCBs, was drained directly on to the ground. Transformer recovery operations were stopped in the 1970s, and DRMO stopped using

the site in 1991.

In 1980, a pipeline, owned by Plantation Pipeline Company of Gastonia, North Carolina, running adjacent to the railroad tracks at the northern end of the landfill ruptured. Approximately 100,000 gallons of diesel fuel spilled from the pipeline adjacent to the Old Landfill. The pipeline was repaired and remains in use.

In 1982, a soil berm enclosure was constructed in the southeastern portion of the site for disposal of Potomac River dredge spoils. Due to its location in the river's floodplain, the project was halted before any spoils were placed in the enclosure.

A removal action was conducted at MCCDC Quantico from September 1990 through December 1990 to remove PCB-contaminated soil from the DRMO Scrapyard and the adjoining Transformer Storage Area. The report, entitled PCB Removal Action (Radian, 1991), provides additional details. The removal action also encompassed the Old Batch Plant site, unrelated to the Old Landfill. U.S. Environmental Services, Inc. (USESI) conducted the removal action, with Radian serving as the Architecture/Engineering (A/E) contractor for the Navy. A total of 3,881 tons of soil and debris were disposed of at the Grayback Mountain Landfill located in Utah. The areas were backfilled, graded, and seeded after completion of the removal activities. Analytical testing confirmed that the borrow material was free of PCBs and other contaminants (i.e., only clean fill was used).

PCBs were essentially present as PCB-1260. Although the removal action targeted soils with 10 milligrams per kilogram (mg/kg) or greater total PCBs, the use of a 5-mg/kg level directed the activities to provide an increased level of confidence that all sampling locations attained the target cleanup level of 10 mg/kg.

At the DRMO Transformer Storage Area, original PCB concentrations ranged from 0.55 mg/kg to 30 mg/kg within the Transformer Storage Area. The removal action consisted of removal of the first foot of soil. At the DRMO Scrapyard, original PCB concentrations ranged from 2 mg/kg to 1,820 mg/kg within the Scrapyard. For the most part, PCB concentrations along the fence separating the Scrapyard from the Old Landfill and the area farther east ranged from 2 mg/kg to 7.5 mg/kg. Two exceptions were the northern end of the fence line, with maximum PCB concentrations of 32 mg/kg, and a drainage channel from the Scrapyard to the Potomac River via the Old Landfill, with maximum PCB concentrations of 23 mg/kg; both of these areas were included in the removal action. Generally, PCB contamination was limited to the top 18 inches of soil. PCB-contaminated soils at 68 percent of the Scrapyard were excavated to a 1-foot depth, 25 percent required excavation to a 2-foot depth, 5 percent required excavation to a 3-foot depth, and 2 percent required excavation to a 4-foot depth. Approximately 3,800 tons of contaminated soil and scrap were removed and disposed of off-site during that action.

Of note, higher PCB concentrations than expected were encountered in the DRMO Scrapyard drainage channel leading to the Potomac River. The maximum PCB concentration in the drainage channel area (1,760 mg/kg at a 1-foot depth) was located at the edge of the area slated for the removal action. This indicates that PCB-contaminated soils that were not addressed in the subject removal action were present further downgradient in the drainage channel.

The Commonwealth of Virginia, Department of Environmental Quality, issued a Notice of Violation (NOV No. 93-06-NRO-075 dated June 24, 1993) for the Old Landfill site. The violation noted "Discharge of polychlorinated biphenyls (PCBs), pesticides, petroleum hydrocarbons, and metals to state waters without authority of a NPDES permit in violation of VR680-14-02, and violating water quality standards for surface water and groundwater, VR 680-12-01, and VR-680-21-04, respectively, and causing environmental damage (PCBs in fish tissue)."

In response to the NOV, the Navy initiated immediate measures to eliminate further contamination from the Old Landfill site, as follows:

- Silt fences were installed to prevent contaminated sediment from migrating from the western side of the site and further contaminating the drainage creek and the river and to prevent sediment from continuing down the drainage creek.

- The blacktop area on the west side of the site was scarified by breaking up the asphalt to make the area more permeable and thus decrease the amount of water moving across the area. The blacktop area contributed greatly to the runoff going into the drainage channel.

- Monthly filtered and unfiltered surface water samples were collected from a location at the mouth of the drainage channel to monitor contaminants of concern

in surface water in the drainage channel and to verify that PCBs are not currently leaving the Old Landfill.

- The Focused Feasibility Study (FFS) was initiated to further study the area and make recommendations for any additional actions deemed necessary and consistent with the Installation Restoration Program.

- An ecological assessment with the U.S. Fish and Wildlife Service was initiated to collect biota samples. The Agency for Toxics and Disease Registry (ATSDR) evaluated this data to assess risks to human health from the consumption of fish from the Potomac River embayment associated with the Old Landfill.

## 2.2 Present Condition of the Old Landfill

There are currently no scrapyard or landfill operations at the Old Landfill. Except for the scrapyard area, the area is forested along the river and tributary banks and open overgrown grassy fields in the vicinity of the former scrapyard. Access to the area is restricted and the site is partially fenced to deter unauthorized access. Deer, groundhogs, rabbits, birds, as well as evidence of beaver activity have been identified at the Old Landfill.

Drainage from the area is channelized into two primary drainage paths: the central drainage swale and the unnamed tributary. The bermed area created in the early 1980s for river dredgings but never used, still exists and is vegetated with trees and bushes. The Old Landfill is scattered with surface debris ranging from various metal objects to concrete, plastics and wood.

## 2.3 Previous Investigations

The Department of the Navy issued guidance in the 1980's for all Navy and Marine Corps installations io perform assessments to determine the extent of improper hazardous substance disposal. The Naval Energy and Environment Support Activity (NEESA) completed the Initial Assessment Study (IAS) for MCCDC, Quantico in 1984. The study identified 17 sites of potential concern, including the Old Landfill. Because of the potential to contaminate surface and groundwater, the Old Landfill was recommended for further study. In the IAS, the Old Landfill was distinct from the DRMO Scrapyard, which was also recommended for further study.

A Confirmation Study (CS) of the Old Landfill and DRMO Scrapyard was completed in 1988. The CS found high levels of PCBs in the surface soils of the Old Landfill and DRMO Scrapyard. The CS recommended a Remedial Investigation for the Old Landfill. The Remedial Investigation began in 1991 and will be completed after the IRA.

An Engineering Evaluation/Cost Analysis (EE/CA) was conducted in 1994 in preparation for a Removal Action for the Old Landfill. In 1995, the EE/CA was transformed into a Focused Feasibility Study (FFS). The FFS is the primary background document for this IRA.

## 2.4 Enforcement Actions

To date, no CERCLA or Resource Conservation and Recovery Act (RCRA) enforcement actions have occurred at the Old Landfill. However, on June 23, 1993, VDEQ issued a Notice of Violation (No. 93-06-NRO-075) for the unpermitted discharge of PCBs, pesticides, petroleum hydrocarbons, and metals to state waters from the Old Landfill Drainage Swale. In conjunction with other response actions in 1993 to stop the discharge of contaminants, the swale was brought into the Virginia Pollutant Discharge Elimination System (VPDES) as a permitted discharge (VPDES No. 2151, Outfall 031) and subject to monthly monitoring requirements.

# 3.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

Community participation requirements in CERCLA Section 113(k)(2)(B)(i-v) and 117 have been met for this IRA.

The Focused Feasibility Study Report and Proposed Plan for the Old Landfill IRA were released to the public in July 1995. Both of these documents are available in the Administrative Record and the Information Repositories maintained at the Chinn Park Regional Library, Prince William, Virginia; John Porter Memorial Library, Stafford, Virginia; and Natural Resources and Environmental Affairs Branch, Building 3040, Quantico. The notice of availability was published in the Quantico Sentry on July 21, 1995; the Free Lance-Star on July 15 and 21, 1995; and the Potomac News on July 15, 1995.

The Public Comment Period occurred from July 15, 1995 to August 19, 1995 and was extended, at USEPA Region III request, to August 28, 1995. A public availability session was held on August 9, 1995. At this session, representatives from MCCDC, Quantico; Engineering Field Activity, Chesapeake; USEPA Region III; and VDEQ hosted a display booth session and were available to answer or address citizen comments. The display booths described the past site history, site characterization, and preferred remedial alternative. A summary of the Availability Session is provided in Appendix A, Responsiveness Summary. No citizen comments were received during the Availability Session or the Public Comment Period.

## 4.0 SCOPE AND ROLE OF OPERABLE UNIT OR RESPONSE ACTION

Past disposal operations at the Old Landfill have contaminated soil, groundwater, sediment, and surface water. The Department of Navy is remediating the Old Landfill in several phases.

Currently there are seven Operable Units (OUs) under investigation/remediation at MCCDC. The current list of OUs at MCCDC include:

OU1 Pesticide Burial Area, IR Site 1
OU2 Arsenic Burial Area, IR Site 17
OU3 Former Rifle Range, IR Site 20
OU4 Old Landfill, IR Site 4
OU5 Aero Club, IR Site 18
OU6 Old Batch Plant, IR Site 5
OU7 Former Fire Training Area, IR Site 19

The IRA, referred to as the "Barrier Layer, Groundwater Monitoring" alternative in the Proposed Plan, is being performed at the Old Landfill, OU4, IR Site 4, and is being implemented to reduce potential risks to human health and the environment associated with the Old Landfill. The IRA at the Old Landfill consists of excavation and off-site treatment or disposal of surface soil and drainage swale sediments contaminated with PCBs in excess of 10 parts per million, regrading the landfill surface, wetlands restoration, installation of a soil barrier layer, and institutional controls. The IRA will be followed by additional Remedial Investigation (RI) activities at the Old Landfill to evaluate groundwater, surface water, and sediment contamination, and potential impacts to the Potomac River to determine if further remedial actions are necessary. The barrier layer will be designed to:

1. reduce channelized flow and erosion by encouraging overland flow which will prevent contaminated soil from being available at the surface;

2. prevent contaminant migration through surface water transport and soil erosion; and

3. eliminate the surface soil exposure pathways.

The IRA will be consistent with any planned future actions, to the extent possible, including the Final Remedy selected for the Old Landfill.

## 5.0 SITE CHARACTERISTICS

This section provides a summary of the nature and extent of contamination at the Old Landfill, a discussion of potential routes of contaminant migration and routes of exposure, the population and environmental areas that could be affected by a release at the site, and site-specific factors that may affect remedial actions at the site.

### 5.1 Contaminants at the Old Landfill

Contaminants of concern found in surface and subsurface soil at the Old Landfill site are listed in the Table 5-1. Table 5-1 lists those chemicals that exceeded EPA Region III, Risk Based Concentrations (RBCs) for residential soil and statistically determined background values. The background concentration was calculated as the arithmetic mean concentration of two background surface soil samples. The Old Landfill,encompassing an approximately 23 acre area, contains approximately 7.6 million cubic yards of waste, and is approximately 8 feet deep.

### 5.2 Potential Route of Contaminant Migration and Route of Exposure

The most likely human health exposure pathway at the Old Landfill is worker contact with the landfill

contents or contaminated surface soil. Contaminants could be absorbed through the skin or ingested. The drainage swale that flows through the central portion of the site may present a risk if individuals come in contact with surface water or sediment. However, there have been no intrusive activities at the site for the past 10 years with the exception of remediation work. Therefore, the likelihood of recent human exposures is minimal. Other than the remediation workers currently on site, no additional workers are anticipated to come in contact with the landfill contents or contaminated surface soil in the future.

5.3 Population and Environmental Areas that could be affected by the contaminants at the site

Civilians and Marine Corps personnel who work or trespass on the site could be exposed to contaminated soils, surface water runoff, and drainage swale sediments. Wildlife could also be exposed. However, as mentioned previously, there are no anticipated future workers other than the remediation workers currently on site. Potential population and environmental receptors of site groundwater will be fully evaluated in the Remedial Investigation.

The results of an endangered species survey was reported in the draft Phase I RI report and submitted to the State and USEPA for review. No potentially affected endangered species have been identified.

Table 5-1: Old Landfill Contaminants

| Chemical | Surface Soil (0 - 2 feet) A | | Surface/Subsurface (0-10 feet) B | |
|---|---|---|---|---|
| | Representative Concentration c | Maximum Concentration | Representative Concentration c | Maximum Concentration |
| **Semivolatile Organic Compounds (ug/kg)** | | | | |
| Benzo(a)anthracene | 516 | 4,800 | 424 | 4,800 |
| Benzo(a)pyrene | 501 | 2,400 | 384 | 4,700 |
| Benzo(b)fluoranthene | 521 | 3,400 | 406 | 3,400 |
| Benzo(g,h,i)perylene | 383 | 2,900 | 305 | 2,900 |
| Dibenzo(a,h)anthracene | 221 | 340 | 212 | 340 |
| Indeno(1,2,3-d)pyrene | 388 | 3,000 | 303 | 3,000 |
| **Pesticides/PCBs (ug/kg)** | | | | |
| Aroclor-1260 | 26,600 | 130,000 | 3,400 | 130,000 |
| 4,4'-DDD | | | 2,100 | 33,000 |
| 4,4'-DDT | 2,200 | 2,700 | 2,200 | 2,700 |
| Dieldrin | 224 | 1,700 | 89 | 1,700 |
| **Inorganics (mg/kg)** | | | | |
| Aluminum | | | 8,430 | 27,500 |
| Arsenic | 3.7 | 7.2 | 6.3 | 52.3 |
| Barium | | | 104 | 825 |
| Beryllium | 0.47 | 0.92 | 0.55 | 2.1 |
| Cadmium | 1.3 | 9.9 | 1.1 | 9.9 |
| Chromium (total) | 21.8 | 53.6 | 23.5 | 65.7 |
| Cobalt | 4.4 | 8.4 | 4.5 | 16.2 |
| Copper | 87.5 | 314 | 58.8 | 568 |
| Lead | 314 | 760 | 327 | 1,530 |
| Manganese | 144 | 333 | 151 | 904 |
| Thallium | 0.54 | 0.94 | 0.59 | 1.9 |
| Vanadium | 33.7 | 60.4 | 31.6 | 60.4 |

Notes: A-Focused Feasibility Study, Table 2-11; B-Focused Feasibility Study, Table 2-12;
C-The 95% upper confidence limit (UCL) of the mean

## 5.4 Site Specific Factors that may affect the Interim Remedial Action

There are several wetlands located throughout the site. Several of these areas will be destroyed during implementation of the IRA. The wetland area will be increased to approximately 2.1 acres around the Unnamed Tributary in the southern end of the site to mitigate the loss of any wetlands impacted/destroyed (estimated to be approximately 1.8 acres). Therefore, the size of the mitigation area will exceed the total acreage of lost wetlands. Performance of the wetland restoration will be evaluated against a Wetland Restoration Monitoring Plan, which will be reviewed by the USEPA, VDEQ, and the Biological Technical Assistance Group (BTAG). Although a permit was not required by the United States Corps of Engineers (COE) for this site, the COE was involved in preparation of the wetland mitigation plans and the mitigation activities will achieve the COE permit program criteria.

The site is adjacent to the Potomac River, necessitating special measures to protect the river from erosion impacts and storm water discharges. The selected shoreline stabilization includes the construction of a stone, rip rap revetment (approximately 1,100 feet long). The revetment is fully described under Section 11.0, Significant Changes; Subsection 11.2, Shoreline Stabilization. Also, because of the high water table, water will be generated during the excavation of contaminated soil and drainage swale sediment. Contaminated water from the excavations will be treated using a bag filter and activated carbon, tested to confirm treatment effectiveness, and discharged to the Potomac River. The discharged water will meet the requirements of the Virginia Pollution Discharge Elimination System (VPDES) permit for discharge to the river.

Currently, no endangered species have been identified at the site. The remedial action shall be implemented so as not to adversely affect such species should any be identified in the future. Also, appropriate efforts shall be made to identify such species that may be present in the future.

## 5.5 Shoreline Excavation

During an extremely low tide in February 1997, a wash out of probable landfill material was observed in the Chopawamsic embayment of the Potomac River. The exceptionally low tide conditions at the time of the site visit afforded the opportunity to conduct a thorough assessment of the Old Landfill shoreline. A letter documenting the site visit, dated February 25, 1997, was provided to the Navy from the VDEQ Office of Federal Facilities Restoration Project Manager.

As a result of the discovery, the Navy, with input from the State and USEPA, proceeded to characterize the approximate nature and extent of the landfill material on the shoreline. On March 17-19, 1997, a total of 17 test pits were excavated and 13 soil samples were collected for analysis (see Figure 5-1).

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Test pits were spaced at approximately 50 ft. intervals from landfill baseline station 6+00 to 12+00. Soil samples were shipped to Analytical Services Corp. (ASC) for DDT and PCB analysis on a seven day turnaround time.

Results of the investigation indicated that the material consisted primarily of typical landfill material with little to no evidence of PCB or DDT contamination. The landfill material was observed from approximately station 6+00 to 12+00, extended to a maximum distance from the landfill berm of approximately 50 feet, and was identified at a maximum depth of 3 feet. The test pits excavated at approximate station 6+00 indicated the greatest depth and breadth of trash. Therefore, an additional seven test pits were excavated and five soil samples were collected for laboratory analysis. The additional test pits were located southwest of station 6+00. Results of the additional investigation indicated that material of a similar character was present southwest of station 6+00 at a maximum depth of 8 feet. All the samples showed PCB results less than 3.32 mg/kg, and DDT results less than 0.332 mg/kg.

Due to the negative aesthetic impact of the landfill material on the shore of the Old Landfill, the requirements under the Open Dump provisions of º4.0 of the VSWMR, and the minimal contamination present in the material, the Navy decided to selectively excavate the trash material and incorporate it back into the landfill beneath the design barrier layer.

In late April 1997, landfill material was removed from the area along the shoreline a distance of approximately 1,100 feet between Stations 6+00 to 12+00, from the shoreline to approximately 50 feet into the river.

An excavation depth of 1 to 3 feet was required across the entire area, except for a 25-foot area near the mouth of the wetlands channel (Station 6+50), which required an excavation depth of 4 to 5 feet. The material was removed, stockpiled near the shoreline, and later transported and placed in the interior of the landfill. An approximate 3,500 cubic yards of landfill matedal was removed from the shoreline during the excavation activities. The only area where restoration of the river bottom was performed was the deeper excavation near Station 6+50. The excavation was backfilled with crushed gravel to the approximate surface of the existing river bottom.

The action resulted in the removal of a significant quantity of sediment and landfill material from the shoreline of the Old Landfill, an increase in the volume of material incorporated under the design barrier layer, and minor changes to the grading plan. The removal of landfill material from the shoreline of the Potomac River was performed as part of the IRA, and as such is anticipated to be consistent with the final remedy. The action should not, however, be viewed as the final remedy. Accordingly, it should be noted that the effectiveness of the current removal action, and the need for further remedial action within the embayment, will be assessed during the upcoming RI investigation.

5.6 Shoreline Stabilization

As a result of the potentially erodable condition observed along the Old Landfill berm, the project team decided to incorporate shoreline stabilization features into the IRA. After completing an alternatives analysis, the selected shoreline stabilization included the construction of a stone, rip rap revetment (approximately 1,100 feet long). The revetment was designed to remedy the potential erosion condition along the shoreline and provide protection against a design wave of approximately 3 feet. The shoreline revetment consists of three elements: a rip rap armor layer, a geotextile filter layer, and a rip rap toe. The revetment detail was developed based on a thorough review of available reference material and consultation with Virginia's Shoreline Protection Engineer.

The action resulted in the excavation and removal of landfill material from the existing berm, an increased volume of material incorporated under the design barrier layer, minor changes to the grading plan, and an increase of construction materials brought onto the site. The shoreline stabilization will be performed as part of the IRA, and as such is anticipated to be consistent with the final remedy. The action should not, however, be viewed as the final remedy.

## 6.0 SUMMARY OF SITE RISKS

This section presents the risks associated with the Old Landfill and the rationale for conducting an IRA at the site,

### 6.1 Human Health Risks

Potential human health risks are categorized as carcinogenic or noncarcinogenic. Lifetime incremental cancer risk. (LICR) estimates are evaluated by performing a probabilistic calculation using estimated exposure intakes and published Cancer Slope Factors (CSFs), and comparing this to an acceptable risk range (1 x 10 -4 to 1 x 10 -6). The resulting risk is a unitless expression of an individual's likelihood of developing cancer from exposure to carcinogenic chemicals. A LICR of 1 x 10 -6 indicates that the exposed receptor has a one in one million chance of developing cancer under the defined exposure scenario. Alternatively, such a risk may be interpreted as representing one additional case of cancer in an exposed population of one million persons.

The calculated cancer risks should be recognized as upper-limit estimates. CSFs are upper bound estimates of the probability of cancer incidence generally derived from animal studies. Actual human risk, while not identifiable, is not expected to exceed the upper limit based on the CSFs, and, in fact, may be lower.

Noncarcinogenic risks are evaluated using a quantity called a Hazard Quotient (HQ) which is the ratio of the site dose (the estimated exposure intake) to a dose not expected to cause adverse health effects (the Reference Dose, RfD), as follows:

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A Hazard Index (HI) is then calculated by summing the individual HQs for the Contaminants of Concern (COCs). If the value of the HI exceeds unity (1.0), there is a potential noncarcinogenic health risk

associated wfth exposure to that particular chemical mixture (USEPA, September 24, 1986). At that time, particular attention should be paid to the target organs affected by each chemical. The HI is not a mathematical prediction of the severity of toxic effects; it is simply a numerical indicator of the possibility of the occurrence of noncarcinogenic (threshold) effects. If the ratio of the intake and the RfD for any individual chemical exceeds unity, toxic effects would also be expected.

The media of concern for this IRA are soil and drainage swale sediments. Old Landfill soils and drainage swale sediments contain semi-volatile organic compounds, volatile organic compounds, halogenated organics, and metal contaminants. Environmental Protection Agency, Region 111, Risk Based Concentrations (RBCs) were exceeded for many chemicals, including metals, polycyclic aromatic hydrocarbons, PCBs, 4,4-DDT and Dieldrin in soil. These contaminants are found sporadically across the Old Landfill. Cumulative carcinogenic risk from the soil contaminants was estimated to exceed 10 -4 only for the potential adult and child resident exposure scenarios. This cancer risk was driven by Aroclor 1260 (PCBs), beryllium, and polycyclic aromatic hydrocarbons, with PCBs contributing the most to risk. Total Hazard Indices did not exceed unity when chemicals were properly separated by target organ.

The presence of PCBs in the Old Landfill soils and drainage swale sediments, particularly in hot spots, have been determined to be additionally impacting the adjacent embayment of the Potomac River. Once in the embayment, bioaccumulation of PCBs occurs in the aquatic receptors. The environmental impact is due to bioaccumulation by aquatic receptors of PCBs and subsequent risk resulting from human ingestion of contaminated fish. These environmental impacts are being investigated and quantified through ongoing studies, including the RI and United States Fish and Wildlife Service (USFWS) studies. However, the impacts have historically violated State Water Quality Standards and have been estimated to be creating risks associated with fish consumption that exceed 10 -4.

## 6.2 Risk Assessment Uncertainties

There are a number of uncertainties with the current risk estimates due to the limited nature of the Focused Feasibility Study. A significant uncertainty is in the actual selection of potential chemicals of concern considered to be representative of site contamination. The use of background concentrations, water quality standards, and toxicity information to screen for potential chemicals of concern may lead to the underestimation of risks. Additionally, the chemical analytical database also has some limitations regarding the representativeness of the laboratory results, the inclusion of nondetected data, data gaps, number of samples collected, and heterogeneity of sample data. The effects of these limitations on the results of the risk assessment are varied. However, every effort was made to collect and use samples that reflect actual site conditions.

The toxicological data used as the basis for all risk assessments contain uncertainty such as the extrapolation of carcinogenic exposure scenarios, the extrapolation of the results of laboratory animal studies to human or environmental receptors, the interspecies variation in toxicological endpoints, the variations in sensitivity among individuals of any particular species, and the use of short-term toxicological studies to predict log-term effects. In addition, established RfDs themselves have an inherent amount of uncertainty and the fact that toxicity information is not available for all chemicals of concern is in itself is a major limitation of the toxicity assessment. Since completion of the preliminary risk assessment in the FFS, the cancer slope factor for PCBs has been reassessed. For highly chlorinated, persistent PCBs such as Aroclor 1260, the slope factor would decrease from 7.7 to 2 per mg/kg/day. Therefore, all PCB cancer risks would decrease by a factor of 3.85, which would still result in an approximately 2 x 10 -4 cancer risk from PCBs in soil alone for the potential adult resident.

Some of the uncertainties related to the estimates of exposure include identification of land use and activity patterns, receptor characteristics, such as age, body weight, and exposure duration, and models and/or equations to estimate exposure doses or contaminant concentrations.

In summary, carcinogenic and noncarcinogenic health risks are estimated using a number of different assumptions. Consequently, the values presented for the Old Landfill Site contain an inherent amount of uncertainty. The extent to which health risks can be characterized is primarily dependent upon the accuracy with which the toxicity of a chemical can be estimated and the accuracy of the exposure scenario assumptions. For the purposes of the risk assessment performed for this site, a conservative approach was used to evaluate the carcinogenicity and HI for chemicals of concern. Therefore, the estimated risks for this site should be over estimated.

## 6.3 Exposure Assessment

As part of a "no action" evaluation, receptors (potential future residents, hunters, trespassers, workers, wildlife, etc.) at the site may be exposed to contaminants via groundwater, surface water, soil, sediments, and landfill gases. Exposure to contaminants in groundwater, surface water, soil and sediment can occur through ingestion, inhalation and dermal contact. Exposure to contaminants in fugitive dust emissions from soil may occur through inhalation. Additional exposure may occur through ingestion of fish, wildlife, and vegetation associated with the site.

While ingestion, inhalation, and/or dermal contact with contaminants in surface water and sediment may present additional risks, the cumulative risk from these media have not been evaluated for the IRA. Cumulative risks will be evaluated under the Remedial Investigation and addressed in the final Remedial Action.

6.4 Risk Characterization

The media of concern for this IRA are soil and drainage swale sediments, which represent the highest risk exposure pathways at the Old Landfill. Cumulative carcinogenic risk from the soil contaminants was estimated to exceed 10 -4 only for adult and child resident exposure scenarios. Total Hazard Indices (HI) were also estimated to exceed unity only for these exposure scenarios. Additionally, the presence of PCBs in the Old Landfill soils and drainage swale sediments have been determined to be impacting the adjacent embayment of the Potomac River.

The exceedance of USEPA's human health risk limits for potential receptors of site soils and the potential for contaminant migration to groundwater and the Potomac River provide the basis for this IRA.

6.5 Ecological Risk

The preliminary risk assessment presented in the Focused Feasibility Study only assessed human health risks. Ecological risks were not evaluated. Biological samples collected in the embayment indicated PCBs were present in the food chain (fish fillets). Ecological risks will be evaluated in the Remedial Investigation and addressed in the final Remedial Action. However, by implementing the IRA, the Navy will reduce future loading and reduce additional impacts to fish.

Although the IRA has been designed to be consistent with the final remedy for the site, this IRA may be aftered as a result of the data gathered dudng the RI and possible implementation of other OUs at the Old Landfill.

7.0 DESCRIPTION OF INTERIM REMEDIAL ACTION ALTERNATIVES

This section describes the remedial action alternatives (RAAs) that were considered for the IRA and presented in the Proposed Plan. During the conduct of the Focused Feasibility Study, applicable remedial technologies were identified, evaluated and assembled into RAAs. This IRA addresses soil and drainage swale sediment contamination at the Old Landfill. Groundwater, surface water, and embayment sediment contaminants of concern at the Old Landfill will be deferred to and further evaluated in the Remedial Investigation. The RAAs include:

- Barrier Layer Implementation;
- Clay Cap;
- Excavation/Offsite Incineration; and
- No Action

7.1 RAA 1: Barrier Layer Implementation

| | |
|---|---|
| Capital Cost | $5,241,000 |
| Annual O&M Cost | $69,000 |
| Implementation Time | 12 Months |

The intent of this alternative is to provide a source-control remedy to minimize exposure to landfill contents, infiltration of stormwater, and migration of contaminants off-site. PCB contaminated surface soil

"hot spots" would be excavated and disposed of offsite in a TSCA-permitted facility, followed by installation of a soil barrier layer. The key components of RAA 1 include:

- Institutional controls (e.g., locked fencing and access restrictions)
- Consolidation of existing berm, demolition and off-silte disposal of scrapyard buildings (Buildings 671 and 672 in the DRMO Scrapyard and Building 679, 680, and several concrete loading structures at the DRMO Transformer Storage Area), and disposal of associated building foundations within the Old Landfill.
- Excavation and off-site disposal at a TSCA-permitted facility of surface soil and drainage swale sediments contaminated with PCBs in excess of 10 parts per million.
- Installation of geotextile and 2-ft. soil layer covering 23 acres, and shoreline protection.
- Replacement of wetlands destroyed/impacted by the implementation of the IRA (including long-term monitoring of the replacement wetlands to ensure mitigation is effective).
- Operation and maintenance (as discussed in Section 9.3; Operations and Maintenance), and 5-year review.
- Upon completion of the "hot spot" removal and construction of the barrier layer, any remaining PCBs will no longer be available to receptors at the land surface, but rather will become a subsurface contaminant. Therefore, no PCBs will remain on the land surface of the Old Landfill.
- Installation of the geotextile and 2-ft. soil barrier layer, in conjunction with shoreline protection, will reduce potential for washout of landfill material from flood conditions and prevent erosion of contaminated soil offsite.

7.2 RAA 2: Clay Cap

| | |
|---|---|
| Capital Cost | $10,854,000 |
| Annual O&M Cost | $69,000 |
| Implementation Time | 15 Months |

The intent of this alternative is to provide a source-control remedy to minimize exposure to landfill contents, eliminate infiltration of stormwater, and prevent migration of contaminants off-site. PCB contaminated surface soil "hot spots" would be excavated and disposed of offsite at a TSCA-permitted facility, followed by installation of a clay cap. All components of RAA 2 are the same as RAA 1 except a 2-foot impermeable clay cap is constructed instead of a 2-foot soil barrier layer.

The clay cap would consist of the following layers, from top to bottom:

- Revegetation
- Soil (24 inches) - barrier protection layer/soil cover
- Gravel (12 inches) - drainage layer
- Filter Fabric
- Clay (12 inches) - low permeability layer
- Filter Fabric
- Gravel (12 inches) - bedding and/or gas venting layer

7.3 RAA 3: Excavation/Offsite Incineration

| | |
|---|---|
| Capital Cost | $383,225,000 |
| Annual O&M Cost | $646,000 |
| Implementation Time | 48 Months |

The intent of this alternative is to provide a treatment alternative. All contaminated fill would be remediated. Key components of RAA 3 include:

- Institutional controls (e.g., looked fencing and access restrictions)
- Excavation/off-site incineration at a TSCA-permitted incinerator of surface soil and drainage swale sediments contaminated with PCBs in excess of 10 parts per million.
- Excavation/off-site incineration of approximately 279,000 cubic yards of potentially contaminated additional material at a RCRA-permitted incinerator.
- Replacement of wetlands destroyed/impacted by the implementation of the IRA (including monitoring of the replacement wetlands to ensure mitigation is effective).
- Demolition and oftite disposal of scrapyard buildings and associated foundations, described in Section 1.0, in order to allow for excavation of potential waste beneath.
- Backfilling based upon state and local requirements.
- Regrading, revegetation, shoreline protection upon completion of the excavation effort.

7.4 RAA 4: No Action

| | |
|---|---|
| Capital Cost | $0 |
| Annual O&M Cost | $0 |
| Implementation Time | 0 Months |

An evaluation of the No Action alternative is required under CERCLA and conducted to provide a baseline for comparison with the other remedial alternatives. Under this alternative, contaminants would remain in site soils and continue to present human health risks and be released via surface water runoff and soil erosion into surrounding surface water bodies. The removal of contaminants and barrier layer installation would not be instituted. This alternative is not protective of human health and the environment.

8.0 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

Section 300.430(e) of the NCP lists nine criteria by which each remedial alternative must be assessed. The acceptability or performance of each alternative against the criteria is evaluated individually so that relative strengths and weaknesses may be identified. The nine criteria include: 1) Overall protection of human health and the environment; 2) Compliance with applicable or relevant and appropriate requirements (ARARs); 3) Long-term effectiveness and permanence; 4) Reduction of toxicity, mobility, or volume through treatment; 5) Short-term effectiveness; 6) Implementability; 7) Cost; 8) State acceptance; and 9) Community acceptance.

The NCP (section 300.430(f)) states that the first two criteria, protection of human health and the environment and compliance with ARARs, are the "threshold criteria" which must be met by the selected remedial action. The next five criteria are the "primary balancing criteria", and the trade-offs within this group must be weighed. The selected remedial alternative is that alternative which is most protective of human health and the environment, is ARAR-compliant, and provides the best combination of primary balancing criteria attributes. With respect to criteria 4), since this is interim action, the IRA is not intended to utilize treatment to the maximum extent. The final two criteria, state and community acceptance, are "modifying crtteria" which are evaluated following comments from the FS report and the Proposed Plan.

## 8.1 Overall Protection of Human Health and the Environment

All of the RAAs developed are protective of public health and the environment, except RAA4. RAA3 provides the greatest level of protectiveness, since this alternative includes full removal of all PCB contaminated soil and landfill trash; however, risks to the environment associated with implementation of RAA3 include potential releases of contamination during removal.

RAAs 1 and 2 reduce exposure to landfill material and prevent erosion. RAA2, with an impermeable clay cap, has the advantage of reducing infiltration from stormwater. Regardless of the cap material, leaching of contaminants will occur from fill material coming in contact with groundwater.

During determination of the cleanup criteria for PCBs in surface soil/sediment, the project team (Navy, USEPA, and VDEQ) evaluated both human health and environmental concerns. For human health, a level of 10 ppm PCBs was agreed upon, which is in accordance with USEPA's "Guidance on Remedial Actions For Superfund Sites With PCB Contamination." For environmental concerns, although BTAG recommended a cleanup level of 1 ppm PCBs, the addition of the additional 2-foot barrier layer effectively eliminates exposure to surficial contamination, thereby increasing protection of human health and the environment. The project team evaluated both criteria and decided a cleanup level of 10 ppm PCBs for this IRA would be protective of human health and the environment.

## 8.2 Compliance with Applicable or Relevant and Appropriate Requirements

RAA 3 complies with all ARARs and guidance and is ranked first.

For RAAs 1, 2 and 3, removal of the PCB "hot spot" from the soil and drainage swale sediments to 10 ppm would comply with and exceed the Federal Toxic Substances Control Act (TSCA) regulations addressing requirements for PCB concentrations greater than 50 ppm. For RAAs 1, 2 and 3, air monitoring will be conducted to ensure that air pollution control regulations are not violated, primarily for fugitive dust emissions during construction. Venting is included in RAA 2.

RAAs 1, 2 and 3 would be implemented to comply with ARARS relating to the storage, treatment, and disposal of hazardous substances, as well as, floodplains and wetlands regulations, erosion and sediment control regulations, and NPDES ARARs.

## 8.3 Long-Term Effectiveness and Permanence

RAA 3 provides the greatest level of protectiveness since all contaminated material would be removed. RAAs 1 and 2, provide varying levels of long-term effectiveness and permanence. The permeable barrier layer of RAA1 appears to be less likely than the impermeable clay cap of RAA 2 to deteriorate from factors associated with location in the 100-year flood plain. For RAAs 1 and 2, excavation and disposal of the PCB surface soil is both effective and permanent.

## 8.4 Reduction of Toxicity, Mobility or Volume through Treatment

Although it is difficult to quantify the volume of contaminants in the Old Landfill, RAA3 would result in the excavation and off-site incineration of PCB contaminated soils and approximately 279,000 additional cubic yards of contaminated fill. Complete destruction of organic toxicity is anticipated with incineration. Metals would reside in the ash produced, which may require solidification to decrease mobility prior to disposal. None of the remaining RAAs would reduce toxicity, mobility or volume through treatment.

## 8.5 Short-Term Effectiveness

For RAAs 1 and 2, there will be little or no short-term effects on the community. Air monitoring will be conducted to detect any unexpected release of contaminants from excavation and grading associated with these alternatives as a precaution. In addition, permitted transporters will be employed to ensure compliance with DOT regulations, with particular respect to air monitoring, for the transportation of hazardous waste to ensure compliance with the Virginia Hazardous Waste Management Regulations (VR 672-10-1 / 9VAC 20-60-10 et seq.). For RAA 3, there will be significant short-term effects to the community due to transportation of contaminated material to the TSCA- or RCRA-permitted facility. This will occur over an extended period of time, up to 48-months. Therefore, RAA 3 has more impacts than RAAs 1 and 2.

An environmental concern is runoff of contamination to the Potomac River during remediation. RAAs 1

and 2 have similar rankings with respect to runoff control, since each of these RAAs involve cap or barrier layer installation. Runoff controls are a major concern for RAA 3 which involves excavation and dredging operations next to the Potomac River. Each RAA emphasizes conducting capping (or excavation) activities in small sections to lessen potential adverse environmental impacts, considering the site location in the 100-year floodplain. Erosion and sedimentation controls will also lessen potential adverse environmental impacts.

Although comprehensive wetland mitigation is planned under all options, a concern with respect to the RAAs will be the short-term loss of wetlands. A significant environmental concern is the filling in of the drainage channel, and more importantly, the unnamed tributary. RAAs 1, 2 and 3 impact the drainage channel and unnamed tributary, either through filling in (RAAs 1 and 2) or removal via excavation (RAA 3), and grading. However, for both RAAs 1 and 2 to be effective, these channels must be incorporated into the barrier layer/cap. Due to the contamination present in the drainage channel sediments, the channel must be removed in all options.

During implementation of the IRA, performance of the wetland restoration will be evaluated against a Wetland Restoration Monitoring Plan, which will be reviewed by the USEPA, VDEQ, and BTAG.

8.6 Implementablillity

Each of the RAAs is technically and administratively feasible. In addition, materials and services are available for each RAA, however, the appropriate clay material for RAA 2 would be more difficult to acquire than the materials required for RAAs 1 and 3. RAA 3, although feasible, would be the most difficult to implement without affecting the Potomac River during excavation and dredging operations. Under RAA 3, it would also be difficult to segregate PCB contaminated fill, which is potentially present throughout the landfill and requires more stringent incineration considerations compared to other waste types.

The impermeable clay cap (RAA 2) is thicker than the permeable barrier layer (RAA1). As a result, the clay cap necessitates additional effort to provide proper slopes for shore protection.

8.7 Cost

Table 8-1 summarizes the capital costs, annual O&M costs, and present worth of the four RAAs. A discount rate of 5 percent was used in the present worth calculation.

Table 8-1: Cost Summary

| Alternative | Capital Costs | Annual O&M | Present Worth |
|---|---|---|---|
| RAA1-Barrier Layer | $5,241,000 | $69,000 | $6,296,000 |
| RAA2-Clay Cap | $10,854,000 | $69,000 | $11,909,000 |
| RAA3-Excavation/Oftite Incineration | $383,225,000 | $646,000 | $352,439,000 |
| RAA4-No Action | $0 | $0 | $0 |

8.8 State Acceptance

Based on its review of the Proposed Plan, the ROD, and support documents, the State supports the selected RAA, which is RAA1.

8.9 Community Acceptance

Community Acceptance summarizes the publids general response to the alternatives described in the Proposed Plan. A summary of the public meeting held August 9, 1995, and comments and responses from the comment period and the public meeting are included in the Responsiveness Summary (Appendix A). Results of the public meeting and community comment indicate that the community favors the selected RAA.

8.10 Summary of Detailed Evaluation

RAA 1 provides the best balance with respect to the nine evaluation criteria for protection of human health and the environment. This alternative meets eight of the nine evaluation criteria in selecting an

appropriate remedy, however, the reduction of toxicity, mobility, or volume through treatment criterion will not be entirely met.

RAAs 2 and 3 are protective of human health and the environment. However, compared to RAA 1, they each have significantly increased costs and implernentability problems.

RAA 4 is not protective of human health and the environment.

## 9.0 SELECTED REMEDY

Details of the barrier layer construction, including wetland mitigation, plant selection, planting requirements; and maintenance will be presented in the final Design Specifications and the IRA Work Plan.

The barrier layer is an interim remedy that may or may not meet the state closure requirements. It is intended as an interim action but is anticipated to be consistent with the final remedy. Upon completion of the Remedial Investigation (RI) and Feasibility Study (FS), the final remedy will be selected which will meet state closure requirements. As an example, groundwater is an outstanding issue not addressed in this ROD, but rather will be addressed during the upcoming RI. State requirements for closure will be monitored during the RI/FS process.

### 9.1 Remediation Requirements

Based upon the consideration of the requirements of CERCLA, the alternatives analysis, and public comments, RAA 1 has been chosen as the IRA at the Old Landfill. The Department of the Navy, Virginia Department of Environmental Quality and the Environmental Protection Agency, Region III, consider RAA 1, to be the most appropriate interim remedial action for the Old Landfill. This IRA has been designed to be consistent with the final remedy for the site. This IRA may be altered as a result of the data gathered during the RI and possible implementation of other OUs at the Old Landfill.

The major components of the IRA include:

- Institutional controls, to assure that activities do not breach or compromise the integrity ofthe barrier layer, fencing around the entire site with locked gates, and restricting access by unauthorized personnel;
- Consolidation of existing berms, demolition and off-site disposal of scrapyard buildings, and incorporation of scrapyard building foundations within the Old Landfill;
- Excavation and off-site disposal of surface soil and drainage swale sediments contaminated with PCBs in excess of 10 parts per million (ppm);
- Permeable 2-foot soil barrier layer installation covering 23 acres with the following layers: high quality vegetation, topsoil. barrier soil, and marking geotextile;
- Incorporation of flood control measures and shore protection;
- Successful replacement and restoration of wetlands destroyed/impacted by the implementation of the IRA (1.8 acres impacted vs. 2.1 acres replaced), including ensuring the replacement and restoration is successful, through continued monitoring and other appropriate measures;
- Operation and maintenance; and
- Five year reviews, as required by the National Contingency Plan.

Additionally, the Remedial Investigation will determine additional remedial actions needed for the site. Such actions will be addressed in a final ROD.

### 9.2 Institutional Controls

Final use restrictions will be addressed in the final remedy. A copy of this document will be provided to the Navy's Planning Offices (at EFACHES and the Marine Corps Base) for their review in order to eliminate performance of any project that might affect the integrity of the barrier layer. Until that time,

institutional controls, to include no breaching of the barrier layer, fencing around the entire site with locked gates, and restricting access by unauthorized personnel, will be employed by the Navy as protection. No invasive development of the landfill area will be allowed.

Each year, the Natural Resources Environmental Affairs (NREA) Branch at the Marine Corps Base shall be responsible for reviewing any on site activities and maintaining continued coordination with the Planning Offices.

9.3 Operations and Maintenance

Operations and maintenance (O&M) will be perfon-ned in accordance with the Virginia Solid Waste Management Regulations (VSWMR º5.0). This O&M will include an annual inspection of the cover, initiated within one year of completion of the IRA. The remaining portions of the VSWMR O&M requirements will be implemented as part of the final remedy for the Old Landfill. O&M for this IRA will include, at a minimum, the following items:

- Performance standards to assure integrity of the barrier layer;
- Erosion control;
- Wetland monitoring, and
- Inspection and maintenance as applicable.

During implementation of the IRA, performance of the wetland restoration will be evaluated against a Wetland Restoration Monitoring Plan, which will be reviewed by the USEPA, VDEQ, and BTAG.

9.4 Performance Standards

- Remove all PCB contaminated surface soil/sediment in the drainage channel to 10 ppm,
- Install silt fences along the river, 20 feet from the river's edge to control erosion as required by Virginia Erosion and Sediment and Control Act.
- Construct 4-foot high temporary berms along the river's edge to minimize soil loss during construction.
- Successfully replace and restore approximately 2.1 acres of wetlands in the unnamed drainage channel.
- Excavate and place waste material and common fill to achieve design grade.
- Construct a barrier layer to prevent direct human contact with site contaminats. The barrier layer will be constructed according to the following performance standards:
- Install an 8-oz, non-woven geotextile, with a minimum thickness of 95-mil and a minimum grab tensile strength of 225 pounds.
- All geotextile will overlap a minimum of 12 inches.
- Geotextile placed 25-percent slopes or steeper will be continuously sewn.
- Install the barrier layer (2 percent minimum grade) consisting of 18 inches of common fill and 6 inches of topsoil.
- The barrier layer will have a maximum particle size of 3 inches and a maximum of 25 percent by weight passing the No. 200 sieve.
- The top soil will contain 5 to 20 percent by weight organic matter and will have a maximum particle size of 1 inch and a maximum of 5 percent by weight retained on the 1/4-inch sieve.

- All disturbed areas will be revegetated. Seed and mulch will be applied to accomplish this.

- Install approximately 3,000 linear feet of chain-link fence with locked gates to prevent unauthorized access to the Old Landfill area.

9.5 Cost of Selected Remedy

The cost to implement RAA 1 is $5,241,000 and the cost for operation and maintenance is $69,000 per year. The present mrth is $6,296,000 over 20 years with 5% discount rate.

10.0 STATUTORY DETERMINATIONS

The goal of this IRA for the Old Landfill is to reduce dermal contact, ingestion, and inhalation risks to human health and the environment, and to eliminate further erosion of contaminants into the wetlands and adjacent Potomac River embayment. This IRA increases protection of human health and the environment with a remedial alternative that is cost effective, consistent with a permanent solution, and complies with Federal, State, and local ARARs specific to this IRA. Following this IRA, risks to human health and the environment from contaminants left on site will be assessed in the Remedial Investigation and addressed in the final Remedial Action.

10.1 Overall Protection of Human Health and the Environment

The selected RAA increases protection to human health and the environment by reducing exposure to, and further release of, site contaminants. Removal of PCB contaminated soil and drainage swale sediments to 10 ppm, stabilization of site grades, and the installation of a soil barrier layer over the entire site will: 1) reduce cumulative carcinogenic risk frorn contact with, and inhalation of, soil and drainage swale sediment contaminants below 10 -4; and 2) prevent further escalation of risks associated with the consumption of fish from water bodies adjacent to the Old Landfill. Hazard Indices were already below unity (less than 1) as discussed in Section 6.1.

Short-term risks associated with the selected RAA could include increased erosion of site soils, increased fugitive dust releases, and increased discharges of contaminated groundwater during dewatering activities required for the drainage channel excavation. However, these short-term risks are to be minimized through use of erosion, dust, and wastewater management plans, as addressed in Section 8.5. With implementation of work plan controls, the short-term risks become acceptable as compared to the continued risks associated with the No Action RAA.

Although comprehensive wetland mitigation is planned, a concern will be the short-term loss of wetlands. An additional environmental concern is the filling in of the drainage channel, and more importantly, the unnamed tributary. RAA 1 impacts the drainage channel and unnamed tributary through filling in and regrading. However, for RAA 1 to be effective, these channels must be incorporated into the barrier layer, and due to the contamination present in the drainage channel sediments, it must be removed in all options.

10.2 Compliance with Applicable or Relevant and Appropriate Requirements

The selected IRA will comply with the Federal, state, and local ARARs specific to this IRA. ARARs are separated into three categories; Chemical-specific, Location-specific, and Action-specific.

Chemical-specific ARARs are usually health or risk-based numerical values or methodologies which, when applied to site-specific conditions, result in the establishment of numerical values. These values establish the acceptable amount or concentration of a chemical that may be found in, or discharged to, the ambient environment. Location-specific ARARs are restrictions placed on the concentration of hazardous substances or the conduct of activities solely because they are in specific locations (floodplains, wetlands, historic places, etc.). Action-specific ARARs are usually technology or activity-base requirements or limitations on actions taken with respect to hazardous wastes. These requirements are triggered by the particular remedial activities that are selected to accomplish a remedy. These Actton-specific requirements do not in themselves determine the remedial alternative; rather, they indicate how a selected alternative must be achieved.

"Applicable requirements" include those cleanup standards, standards of control, and other substantive

environmental protection requirements, criteria, or limitations promulgated under Federal or state law that directly and fully address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site. "Relevant and appropriate requirements" means those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or state law, while not "applicable", address problems or situations sufficiently similar (relevant) to those encountered at the CERCLA site, that their use is well suited (appropriate) to the particular site. "To Be Considered (TBC)" criteria are nonpromulgated, non-enforceable guidelines or criteria that may be useful for developing remedial action, or necessary for determining what is protective to human health and/or the environment. Examples of TBC criteria include USEPA Drinking Water Health Advisories, Carcinogenic Potency Factors, and Reference Doses.

Several pertinent guidances were also identified and will be considered. Table 10-1 (included at the end of this Section) provides a listing of the Chemical, Action, and Location-specific ARARs.

10.3 Cost Effectiveness

RAA 1 was determined to be the most cost effective option.

10.4 Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies) to the Maximum Extent Practicable

The IRA is not designed or expected to be final, but the selected IRA represents the best balance of trade-offs among the RAAs. The selected IRA utilizes permanent solutions, alternative treatment technologies, or resource recovery technologies to increase protection of human health and the environment while complying with ARARs to the maximum extent practicable for interim source control of Old Landfill contaminants.

10.5 Preference for Treatment as a Principal Element

Treatment options were determined to be impracticable for the limited scope of this IRA, since only a small portion of the site is being excavated and would therefore become treatable. The small volume of soil to be excavated does not favor treatment from a cost perspective. Because this IRA does not constitute the final remedy, the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element (e.g., with respect to groundwater) will be addressed in the final ROD.

Continued study of the Old Landfill may identify risks associated with other site media, such as groundwater, that would have a greater potential to utilize treatment than media addressed in this IRA. The inclusion of treatment based remedial technologies in the final remedy would achieve a balance between treatment and non- treatment based remedies for the overall cleanup of the Old Landfill.

TABLE 10-1: Applicable or Relevant and Appropriate Requirements
Old Landfill (Site 4)
Marine Corps Combat Development Command, Quantico, Virginia

| ARAR or TBC | Legal Citation | Classification | Summary Requirement | Applicability to IRA |
|---|---|---|---|---|
| 1. CHEMICAL-SPECIFIC | | | | |
| A. Polychlorinated Biphenyls (PCBs) | | | | |
| 1. Toxic Substance Control Act(TSCA) | | | | |
| a. USEPA PCB Spill Policy | 40 CFR 761 | To Be Considered | Remediation of non-liquids (soil, rags, debris) >50 ppm. Comparison of site concentrations with performance standards for new spills is warranted although the concentration of the original spill(s) is unknown. | Soils or drainage swale sediments with >10 ppm PCB will be removed/disposed based on industrial use, continued monitoring. |
| b. Guidance on Remedial Actions for Superfund Sites with PCB Contamination | OSWER Dir. 9355.4-01, August 1990 | To Be Considered | This document describes the recommended approach for evaluating and remediating Superfund sites with PCB contamination. | The Old Landfill qualifies as an industrial area. Maximum site PCB soil concentrations exceed both industrial and residential recommended remediation goals for soils. PCB contamination will continue to be evaluated at each 5 year review. PCB contaminated soils and drainage swale sediment will be removed to 10 ppm to achieve the remediation goals. |

| ARAR or TBC | Legal Citation | Classification | Summary Requirement | Applicability to IRA |
|---|---|---|---|---|
| II. LOCATION-SPECIFIC | | | | |
| A. Wetlands | | | | |
| 1. Clean Water Act | 33 USC 1344; 40 CFR 230.41 | Applicable | Regulates dredge and fill activities. No activity that adversely affects a wetlands shall be permitted if there is a practical alternative. | Actions along the Potomac or impacted wetlands will be coordinated with COE(Dumfries) and Virginia Marine Resources Commission (VMRC). |
| 2. Wetlands Executive Order | EO 11990 | Applicable | Federal Agencies are required to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance natural and beneficial value of wetlands. | Wetlands will be impacted by the action. Wetlands impact assessment and restoration will be coordinated with COE, Dumfries and VMRC. |
| 3. Coastal Zone Management Act (CZMA) | 16 USC 1451 | Applicable | Protection of shorelines, wetlands and runoff controls. | Alternative will impact shoreline, wetlands and runoff controls. Alternative will comply with substantive requirements of °404 and VPDES permit, and local CZMO and erosion control boards. |
| 4. Floodplain Executive Order | EO 11988 | Applicable | Federal Agencies are required to reduce the risk of flood loss, minimize impact of the floods, and restore and preserve the natural and beneftal value of floodplains. | Portions of the site are in the 100 year floodplain. Flood protection will include vegetative cover and riprap. |
| 5. Virginia Wetlands Act | VA Code 62.1-13.1 et seq; | Applicable | Regulates activities in Tidal Wetlands. | Coordinate compliance through substantive regulations of °404. |
| 6. Virginia Wetlands Regulations Act | VR A450-01 0051 / 4 VAC 20-390-10 et seq. Code 62.1-13.1 et seq. | Applicable | Any activity to take place in, or impact on, a tidal wetland must meet the provisions of the Virginia Wetlands Act and regulations as applicable. Regulates activities in Tidal Wetlands. | Any activity to take place in, or impact on, the tidal wetland of the Old Landfill must meet the provisions of the Act. Coordinate compliance through substantive regulations of °404. |

| ARAR or TBC | Legal Citation | Classification | Summary Requirement | Applicability to IRA |
|---|---|---|---|---|
| 7. Virginia Water Protection Permit Regulations (VWPP) | VR-680-15-02 | Applicable | Applies to activities that affect dredge and fill of surface waters. Commonwealth's certification authority under º401 of the Clean Water Act. | Permit information will be coordinated with VMRC regarding wetland disturbances coordinated through VWPP at VDEQ. |
| 8. Virginia Waste Management Act (VWMA), Siting of Hazardous Waste Facilities | Ch. 14 VWMA Article 6, 10.1-1433 | Applicable | Protects wetlands from facility siting. | Alternative includes restoration. Restoration will be in accordance with this standard. |
| B. Chesapeake Bay | | | | |
| 1. Chesapeake Bay Preservation Act; Chesapeake Bay Preservation Area Designation and Management Regulations (Virginia) | VA Code Ch.21 (º10.1-2100); VR 173-02-01 | Applicable | Limits land disturbing activities impacting state surface water quality. Chesapeake Bay Preservation Act and Regulations administered by local C-BLAD. | Requires that certain locally designated tidal and nontidal wetlands, as well as other sensitive land areas, be subject to limitations regarding land-disturbing activities, removal of vegetation, use of impervious cover, erosion and sediment control, stormwater management, and other aspects of land use that may have effects on water quality. |
| III. ACTION-SPECIFIC | | | | |
| A. Hazardous Waste Management | | | | |
| 1. Virginia Hazardous Waste Management Regulations (VHWMR)/Resource Conservation and Recovery Act (RCRA) | VR 672-10-1 9 VAC 20-60-10 et seq.; 40 CFR 261-266,268,270-271 | Applicable | Controls gereration, storage, and disposal of solid and hazardous waste. Regulations mirror those developed by USEPA for hazardous waste. | If the remedial response involves storage, treatment or disposal of a VHWMR/RCRA hazardous waste, various VHWMR/RCRA requirements may need to be complied with as specified in VHWMR and/or the applicable 40 CFR Parts. Because Virginia administers an authorized state RCRA program, the VHWMR will serve as the governing ARAR in place of the RCRA regulations. |

| ARAR or TBC | Legal Citation | Classification | Summary Requirement | Applicability to IRA |
|---|---|---|---|---|
| 2. RCRA Corrective Action for Solid Waste Management Units at Hazardous Waste Management Facilities | 40 CFR 264, 265,270,271 | To be considered | Corrective Action procedures. | Will be used as guidance when developing remediation strategies. |
| 3. Virginia Solid Waste Management Regulations (VSWMR) | VR 672-20-10 / 9 VAC 20-80-10 et seq. | Applicable | The disposal of any soil, debris, sludge or any other solid waste from a site must be done in compliance with VSWMR | The disposal of any soil, debris, sludge or any other solid waste from the Old Landfill site must be done in compliance with the regulations. |
| B. Water | | | | |
| 1. Clean Water Act | 33 CFR º1342 | Applicable | Controls discharge of contaminants from point source to surface waters. | Criteria will be followed in the design and operation of any water treatment/discharge system. |
| National Pollutant Discharge Elimination System Regulations (NPDES) | 40 CFR 122 | | | |
| 2. Federal Ambient Water Quality Criteria (AWQC) | 40 CFR 131 | Applicable | AWQC may be considered for actions that involve discharges to state surface waters. | Comply with substantive requirements of VPDES, and Storm Water Regulation as identified by VDEQ NRO. |
| 3. Virginia Pollutant Discharge Elimination System Regulations (VPDES) | VR 680-14-01 / 9 VAC 25-30-10 et. seq. | Applicable | Establishes the mechanism for permitting of discharges to state waters through VPDES. | Comply with the substantive requirements of VPDES and Storm Water Regulations as identified by the VDEQ NRO. |
| 4. Virginia Water Quality Standards | VR 680-21-00 | Applicable | Provides water quality standards for surface water. | Standards are used for a basis to develop and comply with the substantive requirements of VPDES discharge permits for PCB hot spots and excavation activities, and Storm Water Regulations as identified by VDEQ NRO. |

| ARAR or TBC | Legal Citation | Classification | Summary Requirement | Applicability to IRA |

| ARAR or TBC | Legal Citation | Classification | Summary Requirement | Applicability to IRA |
|---|---|---|---|---|
| 5. Virginia Stormwater Management Act Virginia Stormwater Management Regulations | Code of Virginia Sections 10.1-603.1 et seq.;<br><br>VR 215-02-00 / 4 VAC 3-20-10 et seq. | Applicable | All land-disturbing activities must be in compliance with local stormwater management programs, where they exist | Comply with substantive requirements as identified by VDEQ. |
| C. Air | | | | |
| 1. Clean Air Act | 42 USC 7401 | | | |
| a. National Ambient Air Quality Standards (NAAQS) | 40 CFR 50 | Applicable | Control emission of unacceptable levels of airborne particulates to the atmosphere. The primary and secondary standards for particulate matter, expressed as PM-10 is 150 [24 hour, annual arithmetic mean] and 50 [1 -year annual arithmetic mean], respectively. | Alternative may result in emission of unacceptable levels of airborne particulates to the atmosphere. Site wetting will be used to control particulate matter and fugitive dust in compliance with VDEQ Air Regulations. |
| 2. Virginia Regulation for the Control and Abatement of Air Pollution (VRCAAP) | VR 120-01-1 through VR 120-08-065 /<br><br>9 VAC 5-10-10 through 9 VAC 5-80-350 | Applicable | Establishes ambient air quality goals and regulates the discharge of pollutants into the atmosphere. | Particulates may be released into the atmosphere during remediation. Site wetting will be used to control particulate matter and fugitive dist in compliance with VDEQ Air Regulations. |
| D. Virginia Erosion and Sediment Control Regulations | VR 625-02-00 | Applicable | Establishes minimum design and implementation standards to control erosion and sedimentation from construction sites. | An erosion and sediment control plan will be prepared and submitted to the Virginia representative at the Navy for review before engaging in any land disturbing activity. |

## 11.0 SIGNIFICANT CHANGES

This section describes significant changes to the Old Landfill IRA that have occurred since the Proposed Plan was submitted for public review. The changes are anticipated to be consistent with the final remedy.

The IRA addresses soil and drainage swale sediment contamination at the Old Landfill. Groundwater monitoring and/or remediation has been deferred to the final Remedial Action. Groundwater, surface water, and embayment sediment contaminants of concern at the Old Landfill will be further evaluated during the Remedial Investigation.

## 12.0 REFERENCES


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U.S. Environmental Protection Agency, October 1991. Compendium of CERCLA ARARs Fact Sheets and Directives. Washington DC.

APPENDIX A
RESPONSIVENESS SUMMARY

I. SUMMARY OF PUBLIC AVAILABILITY SESSION

II. RESPONSES TO WRITTEN COMMENTS RECEIVED AT AVAILABILITY SESSION, AUGUST 9,1995

III. RESPONSES TO WRITTEN COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD, JULY 15,1995 TO AUGUST 28,1995

## I. SUMMARY OF PUBLIC AVAILABILITY SESSION
(Available to Public, September 15, 1995)

A Public Availability Session was held on August 9, 1995 from 4:00 to 9:00 PM on the Focused Feasibility Study (FFS) and Proposed Plan for the Old Landfill Interim Remedial Action (IRA). The Availability Session was located at the Dumfries District Community Cultural Arts Center and conducted in accordance with requirements set forth in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the National Oil and Hazardous Substances Contingency Plan (NCP). The purpose of the Availability Session was to provide a forum to inform the community on the results of the FFS, the alternatives presented in the Proposed Plan, and the preferred alternative for the IRA.

The Availability Session included four display booths featuring: the Old Landfill site history, site investigation process, site characterization, and preferred IRA alternative. Administrative Record documents were available.

Project representatives available to address citizen comments included: the Naval Facilities Engineering Command, Engineering Field Activity Chesapeake (EFACHES); Environmental Protection Agency (USEPA), Region III; Virginia Department of Environmental Quality (VDEQ); Halliburton NUS Corporation (HNUS) and MCCDC, Quantico. Specifically, the representatives included:

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| Ms. Lisa M. Bradford | USEPA Region III |
| Ms. Bernice Pasquini | USEPA Region III |
| Ms. Jennifer Hubbard | USEPA Region III |
| Mr. William Hudson | USEPA Region III |
| Mr. David GrimesVDEQ | |
| Mr. Tony Klimek | HNUS |
| Mr. Heath Wells | EFACHES |
| Ms. Angie Lower | EFACHES |
| Maj. Fred Mock | MCCDC, Quantico |
| Mr. Charles Grimm | MCCDC, Quantico, |
| Mr. John Burleson | MCCDC, Quantico, |

During the five hour availability session, three citizens signed in, two of whom were briefed on the project. Citizens were briefed on all display booths by Mr. Heath Wells, EFACHES. An additional information exchange occurred with Mr. John Burleson regarding past practices at the Old Landfill.

One ciften from Dumfries, Virginia, provided information to Mr. Wells on objects previously unidentifiable on aedal photographs of the scrapyard and said that they would contact Mr. Wells or Mr. Burleson, MCCDC, at a later time to discuss additional information about past waste disposal practices on board MCCDC, Quantico.

A second citizen from Triangle, Virginia, was interested in the contracting mechanisms and possibilities for cleanup at MCCDC, Quantico, since they were interested in business potentials associated with the Old Landfill cleanup earth moving aspects. Mr. Burleson explained that the Navy manages the contracts for the Marine Corps through regional offices of the Naval Facilities Engineering Command. Additionally, Mr. Burleson explained that the contracts were divided into investigatory and cleanup, the Navy Comprehensive Long-term Environmental Action Navy (CLEAN) contracts and Remedial Action Contracts (RAC), respectively. Mr. Burleson recommended contacting the RAC for the Old Landfill cleanup, Ohio Hazardous Materials (OHM), Richmond Office, to get more information on becoming a potential subcontractor. The citizen requested that their name be placed on the Interested Party Mailing List.

A third citizen from Triangle, Virginia came in briefly, took a copy of the Proposed Plan and left. None of the three citizens submitted any written comments.

Additional MCCDC, Quantico affiliated personnel attended the Availability Session to find out more about the project they were partially involved with and show support for the Availability Session concept. Specifically, MCCDC affiliated personnel included:

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| Ms. Kay Lyon | MCCDC, Counsels Office |
| Ms. Penny Clark | MCCDC, Counsels Office |
| Mr. Jim Yohn | MCCDC, Counsels Office |
| Ms. Kelly Dreyer | HQ Marine Corps (LFL) |
| Mr. William Fennel | MCCDC, NREAB Branch |
| Mr. Mel MacDonald | OHM Corporation |
| Mr. Charles Crenshaw | OHM Corporation |

The Availability Session concluded at 9:00 PM.

## II. RESPONSES TO WRITTEN COMMENTS RECEIVED AT AVAILABILITY SESSION, AUGUST 9,1995

No written comments were received at the Public Availability Session.

## III. RESPONSES TO WRITTEN COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD, JULY 16, 1995 TO AUGUST 28,1996

No citizen comments were received.